

CLAIMS

1. A method of treating a vulnerable plaque associated with a blood
5 vessel of a patient, the method comprising:
 rupturing a fibrous cap of the vulnerable plaque;
 releasing a portion of liquid contents of the vulnerable plaque into a
blood vessel lumen as a result of the fibrous cap rupture; and
 capturing at least one of any emboli present within the blood vessel
10 as a result of the fibrous cap rupture.
2. The method of claim 1 wherein rupturing the fibrous cap comprises
compressing the vulnerable plaque.
- 15 3. The method of claim 1 wherein rupturing the fibrous cap comprises
incising the fibrous cap.
4. The method of claim 1 wherein rupturing the fibrous cap comprises
administering ultrasonic energy.
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5. The method of claim 1 wherein rupturing the fibrous cap comprises
administering electromagnetic radiation energy.
6. The method of claim 5 wherein the electromagnetic radiation is
25 selected from a group consisting of radio wave radiation, microwave radiation,
infrared radiation, visible light radiation, ultraviolet radiation, x-ray radiation, alpha
radiation, beta radiation, and gamma radiation.

7. The method of claim 1 wherein the fibrous cap is ruptured with a device selected from the group consisting of a balloon device, a lasing device, a heating device, an ultrasonic device, a radio frequency device, a device for
5 delivering radiation, and an incising device.

8. The method of claim 1 wherein capturing the emboli comprises deploying a distal protection device.

10 9. The method of claim 1 wherein capturing the emboli comprises aspirating the emboli.

10. The method of claim 1 further comprising detecting the vulnerable plaque.
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11. The method of claim 10 wherein detecting the vulnerable plaque comprises labeling the vulnerable plaque.

12. The method of claim 10 wherein detecting the vulnerable plaque
20 comprises determining a temperature of the vulnerable plaque.

13. The method of claim 1 further comprising releasing a portion of solid contents of the vulnerable plaque into the blood vessel lumen as the result of the fibrous cap rupture.
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14. The method of claim 1 further comprising stenting the blood vessel adjacent the vulnerable plaque.

15. The method of claim 1 further comprising cauterizing the vulnerable plaque.

5 16. The method of claim 1 further comprising removing a portion of the ruptured fibrous cap.

17. The method of claim 1 further comprising monitoring the treatment of the vulnerable plaque.

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18. The method of claim 1 further comprising administering at least one therapeutic agent to the patient.

15 19. The method of claim 18 wherein the therapeutic agent is selected from a group consisting of antiangiogenesis agents, antiarteriosclerotic agents, antiarrhythmic agents, antibiotics, antibodies, antidiabetic agents, antiendothelin agents, antiinflammatory agents, antimitogenic factors, antioxidants, antiplatelet agents, antiproliferative agents, antisense agents, calcium channel blockers, clot dissolving enzymes, growth factor inhibitors, growth factors,
20 immunosuppressants, nitrates, nitric oxide releasing agents, vasodilators, and virus-mediated gene transfer agents.

20. A system for treating a vulnerable plaque associated with a blood vessel of a patient, the system comprising:

25 a rupture device that ruptures a fibrous cap of the vulnerable plaque; and

a capture device that captures at least one embolus within the blood vessel.

21. The system of claim 20 wherein the rupture device is selected from a group consisting of a balloon device, a lasing device, a heating device, an ultrasonic device, a radio frequency device, a device for delivering radiation, and
5 an incising device.

22. The system of claim 20 wherein the capture device is selected from a group consisting of a distal protection device and an aspiration device.

10 23. The system of claim 20 further comprising a detection device that detects the vulnerable plaque.

24. The system of claim 23 wherein the detection device comprises a thermal sensor.
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25. The system of claim 20 further comprising a stent operably coupled to the rupture device.

26. The system of claim 20 further comprising a cauterizing device that
20 cauterizes the vulnerable plaque.

27. The system of claim 20 further comprising a therapeutic agent delivery device.